

**State of Missouri  
Department of Natural Resources  
Air Pollution Control Program**

**GRAIN ELEVATOR AND GRAIN PROCESSING  
GENERAL AIR QUALITY OPERATING PERMIT APPLICATION  
-- INTERMEDIATE STATE --**

**INSTRUCTIONS**  
for  
**Option C** -- Intermediate State  
Based on Emission Worksheets

## TABLE OF CONTENTS

What Installations Qualify to Complete This Application?.....	3
Acronyms and Abbreviations.....	4
Application Deadlines.....	4
Section I - General Information.....	4
Section II - Emission Inventory.....	4
Section III - Potential Emissions, Option C, <b>Intermediate State Installations</b> (Based on New Limits Determined from Emission Worksheets).....	5
Section III C.5. - General Instructions for All Worksheets.....	7
Section III C.6. - Grain Elevator -- Emission Worksheet Instructions.....	7
Section III C.7. - Feed Mill Installations -- Emission Worksheet Instructions.....	8
Section VI - Applicant's Certification Statement.....	9
Section VII - General Permit.....	9
Terminal Elevator Example Emission Worksheet.....	10
Country Elevator Example Emission Worksheet.....	11
Feed Mill Example Emission Worksheet.....	12
Combustion Units Example Emission Worksheet.....	13

## WHAT INSTALLATIONS QUALIFY TO COMPLETE THIS APPLICATION?

**QUALIFIED APPLICANTS.** Grain elevator or grain processing installations eligible to obtain an operating permit under Missouri State Rule 10 CSR 10-6.065, Section (5), Intermediate State Operating Permits, may complete and return the General Permit/Application. Installations desiring to obtain an Intermediate General Operating Permit must be willing to accept production/process limits or requirements as conditions of their operating permit in order to restrict potential PM<sub>10</sub> emissions to less than 100 tons per year (tpy).

All Permit/Applications must meet the following requirements:

1. Submit duplicate copies of the Permit/Application.
2. Submit \$100.00 application fee.
3. All signatures must be signed in ink.
4. When required, provide a completed Emission Inventory Questionnaire (EIQ).

Permit/Applications are incomplete unless all information requested is supplied. Failure to supply any additional information requested by the permitting authority may result in the denial of the Permit/Application.

If you need assistance or have further questions, Contact:

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- Missouri Dept. of Natural Resources  
Air Pollution Control Program  
Operating Permit Unit  
P.O. Box 176  
Jefferson City, MO 65102-0176  
Telephone: (573) 751-4817  
Fax: (573) 751-2706
- Missouri Dept. Of Natural Resources  
Regional Offices
- Technical Assistance Program (TAP)  
(800) 361-4827
- The appropriate local agency:
  - Kansas City  
Kansas City Health Dept.  
Air Quality Section  
2400 Troost, 3<sup>rd</sup> Floor  
Suite 3000  
Kansas City, MO 64108  
Telephone: (816) 983-4301  
Fax: (816) 983-4475
  - St. Louis County  
St. Louis County Dept. Of Health  
Air, Land & Water Branch  
Air Pollution Control Section  
111 South Meramec  
Clayton, MO 63105  
Telephone: (314) 854-6923  
Fax: (314) 854-6951
  - Springfield-Green County  
Air Pollution Control Authority  
227 East Chestnut Expressway  
Springfield, MO 65802  
Telephone: (417) 864-1662  
Fax: (417) 864-1499  
Fax: (417) 864-1499
  - City of St. Louis  
Div. Of Air Pollution Control  
1220 Carr Lane Ave.  
St. Louis, MO 63104  
Telephone: (314) 664-7877  
Fax: (314) 865-1916  
Fax: (314) 664-7933

**EXEMPT INSTALLATIONS.** If your installation consists solely of a grain elevator and either of the following apply, then your installation does not need to apply for an operating permit:

1. Commercial grain elevator which:
  - (a) has total storage capacity less than or equal to 190,000 bu., and
  - (b) is located at least one-half (½) mile from any recreational area, residence or other structure not occupied or used solely by the owner or operator of the facility or the owner of the property upon which the facility is located, **or**
2. Noncommercial grain elevator which:
  - (a) has total storage capacity less than or equal to 750,000 bu.,
  - (b) has grain handling capacity less than or equal to 4000 bu./hr., and
  - (c) is located at least five hundred (500) feet from any recreational area, residence or business not occupied or used solely by the owners.

## ACRONYMS AND ABBREVIATIONS

BTU = British Thermal Units  
BTU/HR = British Thermal Units per hour  
BU = bushel(s)  
BU/YR = bushels per year  
CSR = Code of State Regulations  
DNR = Department of Natural Resources  
EIQ = Emissions Inventory Questionnaire  
EPA = Environmental Protection Agency  
ER = emission rate  
LBS/HR = pounds per hour  
LBS/MMBTU/HR = pounds per million British Thermal Units per hour  
Gallons/YR = gallons per year  
G/DSCM = grams per dry standard cubic meter  
GR/DSCF = grains per dry standard cubic foot  
MARC = maximum annual receiving capacity  
MMBTU/HR = million British Thermal Units per hour  
MMCF/YR = million cubic feet per year  
MDNR = Missouri Department of Natural Resources  
PM = particulate matter  
PM<sub>10</sub> = particulate matter less than or equal to 10 microns in aerodynamic diameter  
Tons/HR = tons per hour  
Tons/YR = tons per year  
TPY = tons per year

## APPLICATION DEADLINES

### INTERMEDIATE STATE INSTALLATIONS:

If your installation intends to be classified as an Intermediate State Installation, and actual PM<sub>10</sub> emissions as obtained from your latest EIQ are less than 50 tpy, then your application must be filed no later than May 13, 1997.

If actual PM<sub>10</sub> emissions are greater than or equal to 50 tpy, then your application must be filed no later than July 15, 1996.

**Section I - GENERAL INFORMATION.** You will find most of this information on Form 1.0 of your most recently completed EIQ.

**D. Subpart DD Applicability. Affected facilities are as follows:** each truck unloading and loading station, barge and ship unloading and loading station, railcar loading and unloading station, grain dryer, and all grain handling operations.

Grain handling operations include the following: bucket elevators or legs (excluding legs used to unload barges or ships), scale hoppers and surge bins (garners), turn heads, scalpors, cleaners, trippers, and headhouses and other such structures.

If Subpart DD applies to any of your facilities, be sure to check the "applicable" box and blanks in Section 6.02 2. of the General Permit (Section VII) for this rule and for the specific affected facilities at your installation.

**Section II - EMISSION INVENTORY.** If your installation has not previously submitted the annually required Emission Inventory Questionnaire Forms, you need to obtain these forms and submit them with this application. Otherwise, you do not need to submit these forms. Amendments or changes to a previously submitted EIQ must be submitted at the same time as the general operating permit application. The additional EIQ forms must clearly state that they are replacement or additional forms.

### Section III - Potential Emissions.

#### Option C:

**Intermediate State Installations -- Potential Emissions Based upon Individually Calculated New Process or Production Limits, Particulate Control Device Requirements, or Fuel Oil Combustion Limits.** Limits or requirements will be established by completing the applicable emission worksheets in the application in order to classify your installation as an "Intermediate State Installation." Emission worksheets are presented in the application for grain elevators and feed mills. Your installation will be required to comply with whatever process or production limits or particulate control efficiencies that you finally introduce to the emission worksheets. See item 2. under "Note:" below for the difference between Terminal and Country Elevators.

- Note:
1. Be sure to consider present process, production, or fuel combustion limits or control device requirements contained in State or local agency-issued permits in the emission worksheets. These same limits or requirements are to be entered in Section IV of the application.
  2. Definitions of Terminal and Country Elevators. If your grain elevator receives 50% or more of its grain from farmers in the immediate vicinity during the harvest season, then it is classified as a **country elevator**. Otherwise, it is classified as a **terminal elevator**. A terminal elevator is an elevator that receives grain primarily from other elevators.
1. **Process Limits.** In the emission worksheets, there are 2 choices for the basis of determining annual process limits:
    - Use of acceptable annual process limits (based on permittee's knowledge or historical records of throughputs) for each process (emission unit), or
    - Use of acceptable annual receiving limit and handling factors obtained from EPA's AP-42 document for determining other process throughputs. For example for a country elevator, the factor 2.1 is obtained from the EPA document AP-42 for the grain "removal from bins" process. This means that in order to obtain the approximate throughput for "removal from bins," you would multiply 2.1 times the grain receiving limit. The grain and/or other ingredients receiving limit is the basis for the use of these factors, so you will at least have to determine this figure.
  2. **Control factors** for the control devices in the following table may be used in emission worksheets, if applicable:

TABLE 1 – CONTROL DEVICES AND CONTROL FACTORS (CF's)*	
No Control	1
Baghouse	0.05
Cyclone (high eff. -- 1D-3D)	0.1
Cyclone (med. Effic. -- 2D-2D)	0.25
Cyclone (low eff. -- 1D-1D)	0.65
Oil Suppression System***	0.1
Baghouse & Oil	0.005
High Effic. Cyclone & Oil	0.01
Med. Effic. Cyclone & Oil	0.025
Low Effic. Cyclone & Oil	0.065
Full Enclosure	0.1
3-Sided Enclosure	0.3
2-Sided Enclosure	0.5
Baffling	0.791

\*In the case of two applicable CF's calculate the Combined CF as follows:

Combined CF = CF1 X CF2.

\*\*Each CF = 1.00 - (Control Efficiency in %)/100.

\*\*\*Oiler efficiency can be applied to all operations downstream as well except unloading.

Note: Structures which surround a process can be considered enclosures. This includes buildings and sheds.

3. **Combustion Units.** When determining potential emissions for grain dryers and boilers capable of combusting more than one type of fuel, use the fuel that results in the highest PM<sub>10</sub> emissions. PM<sub>10</sub> emissions are about the same for natural gas and LPG combustion, so in a choice between these two either will do. However, if fuel oil can be combusted as well as natural gas or LPG, calculate emissions using fuel oil emission factors. If capable of combusting both distillate and residual fuel oil, calculate emissions using residual oil emission factors. In the worksheet use the highest sulfur content (%) of the fuel oils you will combust. Various fuel emission factors, heating values and units are presented in the following table:

TABLE 2 - FUEL INFORMATION							
Fuel	Fuel Units	Heating Values (MMBTU/gal)	Emission Factor (lbs/1000 gal)				
			PM <sub>10</sub>	SO <sub>x</sub>	NO <sub>x</sub>	VOC	CO
Natural Gas	MMCF	1050 MMBTU/MMCF	3 lbs/MMCF	0.6 lbs/MMCF	140 lbs/MMCF	2.8 lbs/MMCF	35 lbs/MMCF
LPG	Gal.	0.905	0.26	0	12.4	0.25	3.1
#2 FO	Gal.	0.137	1	143.6 X Sulfur %	20	0.2	5
#4 FO	Gal.	0.14	6.3	150 X Sulfur %	20	0.2	5
#5 FO	Gal.	0.15	9	158.6 X Sulfur %	55	0.28	0.28

4. **Emission Worksheets -- General Information.** Again, when using the worksheets in the application, only introduce those production, process, or fuel oil combustion limits or emission control requirements to which your installation is willing to agree. Agree only to the minimum number of limits or requirements that will make your installation an "Intermediate State Installation." This process may be one of "trial and error," so you may want to work with a pencil until you determine the least burdensome limits or requirements. The goal is to maximize production while minimizing control and at the same time keeping potential PM<sub>10</sub> emissions just less than 100 tons per year.

If you desire to use emission factors different from those noted in the emission worksheets and that are supported by test data; then use them. However, you must submit documentation. Otherwise, emission factors from EPA's AP-42, Section 9.9.1, Grain Elevators and Grain Processing Plants, are used in the emission worksheets. Please note that there are some emission factors from this section to be used in the Feed Mill worksheet that take into consideration certain control devices. For calculations in which these factors are used, a CF for that particular control device should not be applied. These emission factors are noted in the following table:

EMISSION UNIT	TYPE OF CONTROL	PM <sub>10</sub> FACTOR (lbs./ton)
Hammermill	Cyclones	0.06*
	Baghouse	0.0087
	Enclosure	0.12*
Flaking	Cyclone	0.075*
Cracking	Cyclone	0.012*
Pellet Cooler	Cyclones	0.23*

\*Assumed to be one-half of TSP factors.

Upon completion of the applicable "emission worksheet" enter the production, receiving or fuel oil combustion limits; or emission control requirements determined by the worksheets into Tables 1, 2, and 3, as applicable, in Section III Option C5. of the application. Also, if applicable, check the "applicable" boxes in Sections 8.02, 9.02 and 7.01 2. of the General Permit (Sect. VII).

**Note:** Only enter fuel oil combustion limits into the General Permit/Application -- no other fuels. If sulfur dioxide emissions are less than 100 tons per year considering the highest sulfur content as determined by the worksheet, then a sulfur content limit will not be required except in the City of St. Louis and St. Louis, St. Charles, Jefferson and Franklin Counties. Also, if the sulfur dioxide potential emissions of the fuel oil combustion unit(s) were considered in the worksheet and were less than 100 tons per year, then a fuel oil combustion limit will not apply.

If after completing an applicable "emission worksheet" you find that there are no reasonable means by which to qualify your installation as an "Intermediate State Installation," you will need to obtain and complete the applicable

State forms for "Part 70 Installations."

Proceed to complete an applicable "emission worksheet" in Section III of the application by following the instructions noted in the following subsections B.5.& 6. or 7. for the applicable emission worksheet -- B.5. and 6. for grain elevators and B.5. and 7. for feed mills.

**5. General Instructions for All Worksheets.**

- a. First, decide whether you want to enter process limits for all processes noted in the worksheet or whether you want to only enter a receiving limit and rely on the handling factors mentioned earlier to determine other process throughputs.
- b. Column numbers are designated by the letters in parentheses in the column headings.
- c. Line or row numbers are designated by the numbers to the left of each line or row.
- d. Note emission unit ID numbers in Column (B) for PM<sub>10</sub> in the feed mill and grain elevator worksheets and for each grain dryer or boiler on the combustion unit worksheet. These emission unit numbers can have the same designation as they had in your latest EIQ, for example -- EP-1.

**6. Terminal and Country Elevators -- Emission Worksheet Instructions.** Example grain elevator "emission worksheets" follow on pages 10A and 10C.

**a. PM<sub>10</sub> Emissions:**

- (1) Enter the grain receiving limit in tons per year on Line 1. under Column (G). If you do not know the tons per year figure, convert the grain receiving limit in bushels per year to tons per year by placing it in Line 1. under Column (C), and the grain density on Line 1. under Column (D). A typical grain density is about 58 lbs./bu. Perform the calculation as noted (Line 1.: Column (C) X Column (D)) entering the result on Line 1. under Column (G).
- (2) If you desire to use factors to determine process limits for all other processes, enter the grain receiving limit (Line 1., Column (G)) onto all blanks under Column (F). Perform the calculations as noted (Column (E) X Column (F)) for lines 2 through 5 entering the results under Column (G).
- (3) If you desire to enter process limits in tons per year for each process, enter those limits under Column (G) for the respective processes. If you do not know the tons per year figures, enter all process limits in bushels per year in Column (C) for all grain elevator processes. Enter grain densities under Column (D) for all processes. Again a typical grain density is about 58 lbs./bu. Perform the calculations as noted (Column (C) X Column (D)) for lines 2 through 5 entering the results under Column (G).
- (4) Enter the same figures under Column (G) at the top of the page under Column (G) at the bottom of the page. Enter the PM<sub>10</sub> Control Factor (CF) for each process under Column (I) as taken from Table 1 above. Enter the Control Device types in Column (J) for their respective processes. Perform the calculations as noted (Column (G) X Column (H) X Column (I)) for lines 6 through 10 entering the results under Column (K).
- (5) Total Column (K) entering the result onto the blank on Line 11 under Column (K).

**b. Grain Dryer Emissions:**

- (1) On line 1 enter the heat input rating in MMBTU/hr for each grain dryer, and enter onto the first blank on Line 3 for each grain dryer.
- (2) Note the "worst-case" PM<sub>10</sub>-emitting fuel on line 2.
- (3) Select the heating value from Table 2 in Section III Option C3. of the instructions and enter on second blank on line 3 for each dryer.
- (4) Determine the maximum hourly fuel rate by dividing heat input by the heating value of the fuel for each dryer, and enter the result onto the respective blank on line 3.

- (5) Obtain emission factors from Table 2 in Section III Option C3. of the instructions, and enter under columns (B) and (F) for each dryer.
- (6) Enter the maximum hourly fuel rate onto the blanks under Column (C) and (G) for each dryer. Perform the calculations as noted (Column (B) X Column (C) X 4.38 and Column (F) X Column (G) X 4.38) for lines 4 through 8 for each dryer entering the results under Columns (D) and (H).
- (7) Add columns (D) and (H) horizontally for lines 4 through 8 placing the results under Column (I).
- (8) If you have both dryers and boilers see 7.b. below to calculate boiler emissions. Obtain dryer and boiler SO<sub>x</sub>, NO<sub>x</sub>, VOC and CO totals from columns (I) and (S), and enter them into the first and second blank columns of lines 18 through 21 as noted. Add these two columns horizontally placing the totals in the last column on lines 18 through 21.

**c. Total PM<sub>10</sub> Emissions:**

On the grain elevator PM<sub>10</sub> worksheet, enter the figure from the blank on line 11 under Column (K) onto the first blank on line 12. Enter figure from Line 4 under Column (I) of the combustion unit worksheet onto the second blank on line 12. Perform the calculation as noted on line 12 entering the result onto the last blank on line 12.

**7. Feed Mills -- Emission Worksheet Instructions.** Example "emission worksheets" follow on pages 10B and 10C.

**a. PM<sub>10</sub>:**

- (1) Enter the total grain and "other ingredients" receiving limit in tons per year onto the last blank on Line 2. If you do not know the tons per year figure, enter the grain receiving limit in bushels per year onto the first blank on Line 1. Enter the grain density onto the second blank on Line 1. -- a typical grain density is about 58 lbs./bu. Perform the calculation as noted on lines 1 and 2 entering the result onto the last blank of line 2. Also, enter this same figure on line 3 under Column (G).
- (2) If you desire to use factors to determine process limits for all other processes, enter the receiving limit (Line 3, Column (G)) onto all blanks under Column (F). Perform the calculations as noted (Column (E) X Column (F)) entering the results under Column (G) for lines 4 through 10.
- (3) If you desire to enter process limits in tons per year for each process, enter those limits under Column (G) for the respective processes.
- (4) Enter the same figures under column (G) at the top of the page under column (G) at the bottom of the page.
- (5) Enter the PM<sub>10</sub> Control Factor (CF) for each process under Column (I) as taken from Table 1 above. Enter the Control Device types in Column (J) for their respective processes. Perform the calculations as noted (Column (G) X Column (H) X Column (I)) for lines 11 through 18 entering the results under Column (K).
- (6) Total Column (K) entering the result onto the blank on Line 19 under Column (K).

**b. Boiler Emissions:**

- (1) On line 9 enter the heat input rating in MMBTU/Hr for each boiler, and enter it onto the respective blank on Line 11 for each boiler.
- (2) Note the "worst-case" PM<sub>10</sub>-emitting fuel on line 10 for each boiler.
- (3) Select the heating value from Table 2 in Section III Option C3. of the instructions and enter on the respective blank on line 11 for each boiler.
- (4) Determine the annual "potential fuel rate" (Gal/Yr) by dividing heat input by the heating value of the fuel and then multiplying times 8760 for each boiler, and enter the result onto the respective blank on line 11.
- (5) If necessary or desired, enter an annual "fuel limit" (for fuel oil only) for each boiler on the respective



blanks on line 12. Enter the "Total Fuel Limit" (sum of limits for each boiler) on the last blank on line 12.

(6) Obtain emission factors from Table 2 in Section III Option C3. of the instructions, and enter under columns (K) and (O).

(7) If combusting fuel oil, enter the % sulfur content on line 14 under columns (L) and (P).

(8) Enter the "potential fuel rate" or "fuel limit," whichever is preferred, on the blanks under Columns (M) and (Q). Perform the calculations as noted (Column (K) X Column (L) (if applicable) X Column (M) divided by 2000, and Column (O) X Column (P) (if applicable) X Column (Q) divided by 2000) for lines 13 through 17 entering the results under Columns (N) and (R).

(9) Add columns (N) and (R) horizontally for lines 13 through 17 placing the results under Column (S).

c. **Grain Dryer Emissions:** See 6.b. above.

d. **Total PM<sub>10</sub> Emissions:**

On the feed mill PM<sub>10</sub> worksheet, enter figure from blank on line 19 under Column (K) onto first blank on line 20. Enter figure from Line 4 under Column (I) from the combustion unit worksheet onto second blank on line 20. Enter figure from Line 13 under Column (S) from the combustion unit worksheet onto third blank on line 20. Perform the calculation as noted on line 20 entering the result onto the last blank on line 20.

**Section VI - APPLICANT'S CERTIFICATION STATEMENT.** A responsible official must sign the document certification. The responsible company official is required to certify to the truth, accuracy, and completeness of the document. The certification must state that :

"Based on information formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete" (emphasis added).

The definition of responsible company official means, for most facilities, that the certification statement must be made by the plant manager or a more senior corporate official. In fact, at some locations, the plant manager can only make the certification if delegation of authority to the plant manager is approved in advance by the permitting authority. Eligible parties to make the certification include:

- a corporate officer
- a person in charge of a principal business function (e.g., a general manager), or
- a plant manager, provided that the plant has at least 250 employees or \$25 million in sales or expenditures (in 1980 dollars) or authority has been delegated.

Knowingly falsifying any document, representation, or certification is a felony under the Clean Air Act; therefore, responsible company officials must take care in preparing the certification, and must ask the proper questions to ensure the accuracy and completeness of the document.

**Section VII - GENERAL PERMIT.** Go through the General Permit thoroughly and check the "Not Applicable" box in all sections (6.01 through 9.04) that do not apply to your installation. If Section 8.01 or 8.02 applies, then you need to check Sections 8.03 and 8.04 as "applicable." Similarly, if Section 9.01 or 9.02 applies, then you need to check Sections 9.03 and 9.04 as "applicable."

Be sure to check "not applicable" for those rules that do not apply to your area. All Missouri State Rules for your area are applicable. However, most likely 10 CSR 10-6.070, New Source Performance Standards, Subpart DD is not applicable. It will only affect a few installations. You will have to determine whether it affects your installation.

Please note that in many cases the "Record keeping Requirement" for many applicable requirements is the maintenance of previous DNR inspection reports.

**TERMINAL ELEVATOR**
**Attachment A**
**PM10:**

----- Annual Process Limits -----

Emission Unit:		Acceptable Annual Process Limits:					OR	Factor Times Receiving Limit:				(G)
(A)	(B)	(C)		(D)			(E)		(F)			
Name	ID#	(bu./yr.	X	lbs./bu.	/2000) =	OR	(Factor	X	Rec. Limit*)	=	Proc. Limit (TPY)	
1	Receiving	_____	_____	X	_____ /2000 =	OR	(LEAVE BLANK FOR RECEIVING)				=	_____
2	Shipping	_____	_____	X	_____ /2000 =	OR	1	X	_____	=	_____	
3	Bin Vent	_____	_____	X	_____ /2000 =	OR	2.1	X	_____	=	_____	
4	Grain Drying	_____	_____	X	_____ /2000 =	OR	0.3	X	_____	=	_____	
5	Internal Operations	_____	_____	X	_____ /2000 =	OR	3.1	X	_____	=	_____	

(A)	(B)	(G)	X	(H)	X	(I)	(J)	=	(K)
Name**	ID#**	Proc. Limit**		AP-42 EF (lbs./ton)		CF	Control Device Type		Process Emission Rate (lbs./yr.)
6 Receiving	_____	_____	X	0.0375	X	_____	_____	=	_____
7 Shipping	_____	_____	X	0.0075	X	_____	_____	=	_____
8 Bin Vent	_____	_____	X	0.0125	X	_____	_____	=	_____
9 Grain Drying	_____	_____	X	0.055	X	_____	_____	=	_____
10 Internal Operations	_____	_____	X	0.2	X	_____	_____	=	_____

11 TOTAL ELEVATOR PM10 (LBS./YR.) = \_\_\_\_\_ LBS./YR.

12 TOTAL PM10 (TPY) = \_\_\_\_\_ (LBS./YR.)/2000 + \_\_\_\_\_ TPY (Dryer) = \_\_\_\_\_ TPY

\*Same as Receiving Process Limit in Column (G).

\*\*Same as columns in top half of page.

**COUNTRY ELEVATOR**
**Attachment B**
**PM10:**

----- Annual Process Limits -----

Emission Unit:		Acceptable Annual Process Limits:					OR	Factor Times Receiving Limit:				(G)
(A)	(B)	(C)	X	(D)	/2000 =		OR	(E)	X	(F)	=	Proc. Limit
Name	ID#	(bu./yr.		lbs./bu.				(Factor		Rec. Limit*)		(TPY)
1 Receiving	_____	_____	X	_____	/2000 =	OR		(LEAVE BLANK FOR RECEIVING)			=	_____
2 Shipping	_____	_____	X	_____	/2000 =	OR		1	X	_____	=	_____
3 Bin Vent	_____	_____	X	_____	/2000 =	OR		2.1	X	_____	=	_____
4 Grain Drying	_____	_____	X	_____	/2000 =	OR		0.3	X	_____	=	_____
5 Internal Operations	_____	_____	X	_____	/2000 =	OR		3.1	X	_____	=	_____

(A)	(B)	(G)	X	(H)	X	(I)	(J)	=	(K)
Name**	ID#**	Proc. Limit**		AP-42 EF (lbs./ton)		CF	Control Device Type		Process Emission Rate (lbs./yr.)
6 Receiving	_____	_____	X	0.0375	X	_____	_____	=	_____
7 Shipping	_____	_____	X	0.0075	X	_____	_____	=	_____
8 Bin Vent	_____	_____	X	0.0125	X	_____	_____	=	_____
9 Grain Drying	_____	_____	X	0.055	X	_____	_____	=	_____
10 Internal Operations	_____	_____	X	0.2	X	_____	_____	=	_____

11 **TOTAL ELEVATOR PM10 (LBS./YR.) =** \_\_\_\_\_ **LBS./YR.**

12 **TOTAL PM10 (TPY) =** \_\_\_\_\_ (LBS./YR.)/2000 + \_\_\_\_\_ TPY (Dryer) = \_\_\_\_\_ **TPY**

\*Same as Receiving Process Limit in Column (G).

\*\*Same as columns in top half of page.

**FEED MILL PM10:**
**Attachment C**

**1** Receiving (Grain & Other Dry Ingreds.) Annual Process Limit = \_\_\_\_\_ (Grain in bu./yr.) X \_\_\_\_\_ (lbs./bu.)/200  
**2** + \_\_\_\_\_ (Other Ingreds. in tons/yr.) = \_\_\_\_\_ **TPY**

<b>Emission Unit:</b>		<b>Factor Times Receiving Limit:</b>			<b>(G)</b>	
<b>(A)</b>	<b>(B)</b>	<b>(E)</b>	<b>(F)</b>			
Name	ID#	(Factor	X	Rec. Limit*)	=	Proc. Limit (TPY)
<b>3</b> Receiving	_____	(LEAVE BLANK FOR RECEIVING)				_____
<b>4</b> Bin Vent	_____	2.0	X	_____	=	_____
<b>5</b> Cleaning	_____	0.3	X	_____	=	_____
<b>6</b> Hammermill:	_____	0.6	X	_____	=	_____
<b>7</b> Flaking	_____	0.3	X	_____	=	_____
<b>8</b> Cracking	_____	0.3	X	_____	=	_____
<b>9</b> Pelleting	_____	1.0	X	_____	=	_____
<b>10</b> Shipping	_____	1.0	X	_____	=	_____

(A)		(B)	(G)	(H)		(I)	(J)	(K)	
Name**	ID#**	Proc. Limit**	X	AP-42 EF (lbs./ton)	X	CF	Control Device Type	=	Process Emission Rate (lbs./yr.)
11 Receiving	_____	_____	X	0.029	X	_____	_____	=	_____
12 Bin Vent	_____	_____	X	0.00975	X	_____	_____	=	_____
13 Cleaning	_____	_____	X	0.12	X	_____	_____	=	_____
14 Hammermill:	_____								
w/ Cyclones		_____	X	0.06	X	_____	_____	=	_____
w/ Enclosure		_____	X	0.12	X	_____	_____	=	_____
w/ Baghouse		_____	X	0.0087	X	_____	_____	=	_____
15 Flaking	_____	_____	X	0.08	X	_____	_____	=	_____
16 Cracking	_____	_____	X	0.012	X	_____	_____	=	_____
17 Pelleting	_____	_____	X	0.217	X	_____	_____	=	_____
18 Shipping	_____	_____	X	0.0054	X	_____	_____	=	_____
19 TOTAL ELEVATOR PM10 (LBS./YR.) =									_____ LBS./YR.
20 TOTAL PM10 (TPY)		=	_____ (LBS./YR.)/2000	+	_____ (Dryer)	+	_____ (Boiler)	=	_____ TPY

\*Same as Receiving Process Limit in Column (G).

\*\*Same as columns in top half of page.

## Attachment D

## | #2 Grain Dryer ID#:

#2 Grain Dryer ID#:

Heat Input = \_\_\_\_\_ MMBtu/Hr.

Fuel Combusted: \_\_\_\_\_

Max. Hourly Fuel Rate = \_\_\_\_\_ MMBtu/Hr. / \_\_\_\_\_ = \_\_\_\_\_  
(Heating Value) (Units/Hr)

(Units/Hr)

Total Dryer  
Em. Rate

Emission Factors	X	Hrly. Rate (Units/Hr)	X 4.38 =	Rate (TPY)	Em. Rate (TPY)
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\_\_\_\_\_ X \_\_\_\_\_ X 4.38 = \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ X \_\_\_\_\_ X 4.38 = \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ X \_\_\_\_\_ X 4.38 = \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ X \_\_\_\_\_ X 4.38 = \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ X \_\_\_\_\_ X 4.38 = \_\_\_\_\_ = \_\_\_\_\_

## | #2 Boiler ID#: \_\_\_\_\_

#2 Boiler ID#: \_\_\_\_\_

Heat Input = \_\_\_\_\_ MMBtu/Hr.

Fuel Combusted:

Potential Fuel Rate = \_\_\_\_\_ MMBtu/Hr./ \_\_\_\_\_ X 8760 = \_\_\_\_\_  
(Heating Value) (Units/Yr)

Fuel Limit =  $\frac{\text{_____}}{\text{(Units/Yr)}}$  =  $\frac{\text{_____}}{\text{(Units/Yr)}}$  (Total Fuel Limit)

**(S)**

Total Boiler  
Emission

Emission Factors	X	Content %	X0.0005X	Rate (Units/Yr)	=	Rate (TPY)	Rate (TPY)
------------------	---	-----------	----------	-----------------	---	------------	------------

$$X + X0.0005X =$$
$$X + X0.0005X =$$
$$+ \underline{\hspace{2cm}} X \quad X0.0005X \quad \underline{\hspace{2cm}} = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$
$$+ \underline{\hspace{2cm}} X \quad X0.0005X \quad \underline{\hspace{2cm}} = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$
$$+ \underline{\hspace{2cm}} X \quad X0.0005X \quad \underline{\hspace{2cm}} = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

TPY

$$\text{FILER NOx)} = \frac{\text{TPY}}{\text{TPY}}$$

ILER VOC) = \_\_\_\_\_ TPY

\_\_\_\_\_TPY